

### **Patent Claims**

1. Alkali aqueous flocculating agent based on an alkali aqueous salt clay extract with a contents of dissolved silicates and aluminates as well as alkali chloride, whereby for 1 part by weight of aluminate expressed as  $\text{Al}(\text{OH})_3$  are provided
  - 1.) approximately 2 to 3 parts by weight of silicate (expressed as  $\text{SiO}_2$ ) as well as
  - 2.) at least approximately 10 parts by weight, especially at least 20 parts by weight of alkali chloride.
2. Flocculating agent according to Claim 1, characterized in that the alkali chlorides exist in form of sodium chloride.
3. Flocculating agent according to Claim 1 or 2, characterized in that for 1 part by weight of aluminate are provided at least approximately 30 parts by weight of alkali chloride, especially approximately 40 to 60 parts by weight.
4. Flocculating agent according to at least one of the preceding Claims, characterized in that the pH-value lies above 9, especially above 11.
5. Flocculating agent according to Claim 4, characterized in that the pH-value of the flocculating agents lies between approximately 12 and 14.

6. Flocculating agent according to at least one of the preceding Claims, characterized in that it originates from gray salt clay, green salt clay, red salt clay and/or black salt clay.
7. Flocculating agent according to Claim 6, characterized in that it originates from green salt clay.
8. Flocculating agent according to at least one of the preceding Claims, characterized in that it involves a clear, colorless and odorless and non-toxic solution.
9. Solid flocculating and sedimentation agent in form of an acidic and alkali extracted salt clay.
10. Flocculating- and sedimentation agent according to Claim 9, characterized in that its average particle size is smaller than 50  $\mu\text{m}$ , especially smaller than 20  $\mu\text{m}$ .
11. Flocculating- and sedimentation agent according to Claim 10, characterized in that the average particle size is smaller than 10  $\mu\text{m}$ , especially that 30% of the particles can have a particle size of less than 3  $\mu\text{m}$ .

12. Flocculating- and sedimentation agent according to at least one of Claims 1 to 11, characterized in that it originates from gray salt clay, green salt clay, red salt clay and/or black salt clay, especially from green salt clay.
13. Method for manufacture of an alkali aqueous flocculating agent according to at least one of Claims 1 to 8 and/or a flocculating- and/or sedimentation agent according to at least one of Claims 9 to 12, characterized in that a salt clay is initially broken down in an acid medium at increased temperature, the resulting acid suspension is adjusted highly alkaline, the alkaline suspension kept for some time at increased temperature and the alkaline aqueous flocculating agent separated as clear solution from the solid flocculating- and sedimentation agents.
14. Method according to Claim 13, characterized in that the separation occurs by means of sedimentation.
15. Method according to Claim 14, characterized in that the solid flocculating- and/or sedimentation agent is adjusted to a suspended contents of solid clay substances of approximately 6 – 8% by weight.
16. Method according to at least one of the preceding Claims 13 to 15, characterized in that gray salt clay, green salt clay, red salt clay and/or black salt clay is used as

starter material, especially green salt clay.

17. Utilization of the alkali aqueous flocculating agent according to at least one of Claims 1 to 8 for the treatment of water
  - 1) in swimming pool facilities alone or in combination with an aluminum- and/or iron-containing flocculating agent, dosed in jointly for flocculent filtration,
  - 2) in drinking water-, industrial-, gray water- and waste water treatment as specific flocculating and precipitation agent,
  - 3) in separation of solid matter in sewage treatment plants as adsorption and sedimentation and filtration adjuvant and
  - 4) for reduction of harmful matter and for beautification of water in swimming ponds, ponds and biotopes, whereby application of the flocculating agent occurs especially by means of dosing systems.
18. Utilization of the flocculating- and sedimentation agent according to at least one of Claims 9 to 12 in the treatment of pond water, especially of natural and artificially constructed ponds, biotopes and bodies of water with strong plant growth or increased algae growth and high cloudiness, whereby the

agent is especially applied to the respective water surface.

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